

Please amend the application as follows:

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-6. (Canceled)

7. (Currently Amended) A transmission apparatus comprising:

a first main gear rotationally attached to a support and capable of being driven by a first drive;

a second main gear being coaxial to the first main gear and rotationally attached to the first main gear, the second main gear geared to a roller drive gear and being driven by a second drive;

a linear drive in which an elongated device is engaged along an axis of rotation of the elongated device, the linear drive coupled to the first main gear, when the first main gear is rotated, the elongated device is rotated about the elongated device's axis of rotation, the linear drive being geared to the roller drive gear, when the second main gear is rotated the linear drive imparts linear motion to the elongated device; and

the first main gear including a first slot extending from an outer perimeter of the first main gear to the center of the first main gear and the second main gear including a second slot extending from an outer perimeter of the second main gear to the center of the second main gear, the first and second slots being aligned in a common plane in a first position, the elongated device being removably received into the linear drive through the first slot and second slot when the first and second gears are in the first position.

8. (Original) The apparatus of claim 7, wherein the first drive and the second drive transmit power to the first main gear and the second main gear respectively via drive screws.

9. (Original) The apparatus of claim 7, wherein the first drive and the second drive are motors.

10. (Canceled)

11. (Currently Amended) The apparatus of claim [[10]] Z, further comprising a position sensor configured to allow automated alignment of the slots for insertion or removal of the elongated device.

12. (Original) The apparatus of claim 7, wherein the linear drive comprises two geared rollers that are geared to the second main gear.

13. (Original) The apparatus of claim 12, wherein the two geared rollers resiliently grip the elongated device, and may be separated in order to insert or remove the elongated device.

14. (Original) The apparatus of claim 7, wherein a first position sensor measures the position of the first drive and a second position sensor measures the position of the second drive, whereby an open control loop can be applied to the operation of the first and second drives.

15. (Original) The apparatus of claim 13, wherein the two geared rollers are connected to a linear position sensor, whereby the actual movement of the elongated device is measured, whereby a closed control loop comprising the actual position of the elongated device from the linear position sensor and the first and second drive positions from the first and second position sensors.

16. (Original) The apparatus of claim 7 wherein the elongated device is a medical device.

17. (Original) The apparatus of claim 7 wherein the elongated device is a guide wire.

18. (Original) The apparatus of claim 7 wherein the elongated device is a catheter.

19-32. (Canceled)

33. (Currently Amended) A method comprising:

rotating a first main gear rotationally attached to a support and capable of being driven by a first drive, the first main gear having a first slot extending from an outer perimeter of the first main gear to a center of the first main gear;

rotating a second main gear being coaxial to the first main gear and rotationally attached to the first main gear, the second main gear geared to a roller drive gear and being driven by a second drive, the second main gear having a second slot extending from an outer perimeter of the second main gear to a center of the second main gear;

moving a portion of an elongated device through the first and second slots from the outer perimeter of the first and second main gears to the center of the first and second main gears; and

engaging ~~[[an]]~~ the elongated device along an axis of rotation of the elongated device in a linear drive, the linear drive coupled to the first main gear, such that when the first main gear is rotated, the elongated device is rotated about the elongated device's axis of rotation, the linear drive being geared to the roller drive gear, such that when the second main gear is rotated the linear drive imparts linear motion to the elongated device.

34-50. (Canceled)

51. (New) A transmission for an elongated device having a first end, a second opposing end and a length intermediate the first and second ends, the transmission comprising:

a first main gear having an outer perimeter and a slot extending from the outer perimeter to a center of the first main gear, the slot configured to permit passage of the elongated device from the outer perimeter of the first main gear to the center of the first main gear;

a first roller wheel and a second roller wheel coupled to a housing being secured to the first main gear, the first roller wheel and second roller wheel configured to receive a portion of the elongated device therebetween; and

wherein, rotation of the first main gear rotates the housing and first and second roller wheels about a rotational axis of the elongated device, the rotational axis extending through the center of the first main gear and being substantially perpendicular to the first main gear.

52. (New) The transmission for an elongated device of claim 51, further including a support supporting the first main gear, the support having an outer perimeter and a slot extending from the outer perimeter therein, the slot configured to permit passage of the elongated device from the outer periphery of the support to the rotational axis.

53. (New) The transmission for an elongated device of claim 52, wherein the roller wheels are movable toward and away from each other to facilitate insertion and removal of the elongated device.

54 (New) The transmission for an elongated device of claim 53, wherein the roller wheels and first main gear are movable to a first position where a gap between the roller wheels and the slots in the support and first main gear are all aligned to permit insertion and removal of the elongated device.

55. (New) The transmission for an elongated device of claim 54 wherein the elongated device is one of a guidewire and catheter device.

56. (New) The transmission for an elongated device of claim 55 wherein the first main gear includes a plurality of gear teeth proximate the perimeter of the first main gear.

57. (New) The transmission for an elongated device of claim 55 further including a position tracking mechanism to allow automated alignment of the slot for insertion or removal of the elongated device between the rollers.

58. (New) A method for rotating an elongated device having a first end, a second opposing end, the method comprising:

- providing a transmission having a first main gear including an outer perimeter and a slot extending from the outer perimeter to a center of the first main gear,

- providing a first roller and a second roller coupled to a housing being secured to the first main gear,

- providing a position tracking mechanism to allow automated alignment of the slot for insertion or removal of the elongated device between the rollers,

- automatically aligning the slot in the first main gear and the gap between the first roller and second roller with the position tracking mechanism and placing a length of the elongated device intermediate the first and second ends through the slot in the first main gear and between the first roller and second roller such that the elongated device extends through the center of the first main gear and between the first and second rollers,

- rotating the elongated device about its axis of rotation by rotating the first main gear and first and second rollers and the housing about the axis of rotation of the elongated device, where the rotational axis of the elongated device is perpendicular to the first main gear.